Syntax II

FSEM CORE S119: Language as Human Nature
Fall 2025
Prof. Forrest Davis

October 2, 2025

Warm-up

1. Fall is here! Discuss with your neighbor the best type of Halloween candy.
2. Using at least one constituency test, demonstrate that 'your food' is a constituent in 'The cats ate your food'.

Logistics

- Report 2 due Oct 9

Learning Objectives

- Build syntax trees
- Understand the role of syntactic phrases
- Describe the difference between arguments and adjuncts (and their representation in trees)
- Give the relations between elements in a tree and use that to describe part of pronoun interpretation

Summary: We refresh the basic construction of syntax trees. Then, we add a bit more structure to our toolkit to capture generalizations about constituents. We end with some complications like selection and additional structure in a sentence.

Our Goal in the Next Few Classes

THERE ARE SOME FACTS ABOUT ENGLISH THAT ARE WEIRD, but that you may not reflect on very often:

- What will Mary write on a typewriter? (cf. Mary will write what on a typewriter)
- Does Mary like food? (cf. Will Mary like food?)
- Mary's mother admires her (cf. Mary's mother admires herself)
- Bob thought that Bill hated himself (cf. Bob thought that Bill hated him)
- It will rain (cf. *The cat will rain)

In the next few classes, we are going develop the tools to describe what may be happening with these sentences and how languages differ in the choices they make in building similar structures.

Building Trees

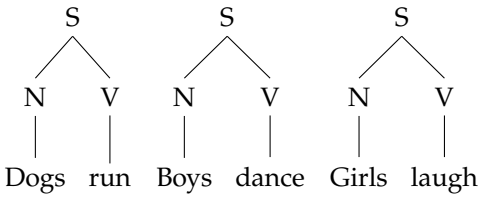
THE AIM OF SYNTAX IS TO CHARACTERIZE the sentences that are grammatical (i.e., well-formed) in a language. In English, basic sentences can be formed from combining a noun (N) and a verb (V):

- Dogs run
- Boys dance
- Girls laugh

We are aiming to give rules that can describe the ways sentences are formed (and the groupings that compose them). A simple rule to account for the basic sentences of English is:

$$S \rightarrow N\ V$$

We can then build trees:



Question

We don't have rules for Dogs, run, etc. Where do we get this information from?

Motivating Phrases

ENGLISH IS CHARACTERIZED BY many more rules for forming sentences. Let's consider a collection of them:

Sentence	Rule Needed
Dogs chase cats	S →N V N
Some dogs chased the cats	S →D N V D N
Old dogs chased young cats	S →A N V A N
Some old dogs chased the young cats	S →D A N V D A N

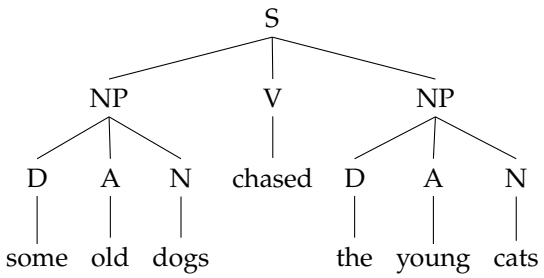
Table 1: Some sample English sentences and rules highlighting nouns.

The way we are building rules in Table 1 is missing a genearlization. Namely, in English, it appears that N, D N, A N, and D A N, are in a syntactic sense all the same. Additionally, they represent a unit (a constituent in fact). To capture this, let's call the structure they all belong to the Noun Phrase (or NP).

We can now add the following rules to English and simplify our sentence rules:

NP	→	N
NP	→	D N
NP	→	A N
NP	→	D A N
S	→	NP V
S	→	NP V NP

We can use these rules to build richer trees:



Practice Problems

1. Consider the English sentences below. Add rules that generate each sentence.

Sentence	Rule Needed
The dog ran down	
The dog ran down the hill	
The dog chased the cat down	
The dog chased the cat down the hill	

2. Now make a generalization about verbs in the same way we did with nouns.

3. Add to or modify our English rules so far given your insights about verbs.

Arguments and Adjuncts

THE RULES WE JUST GAVE are about as far as we will go with phrase structure rules. In the next two sections, we will focus on additional issues and structures that we represent in trees.[1]

We will start with facts about **selection restrictions**. Consider the following data:

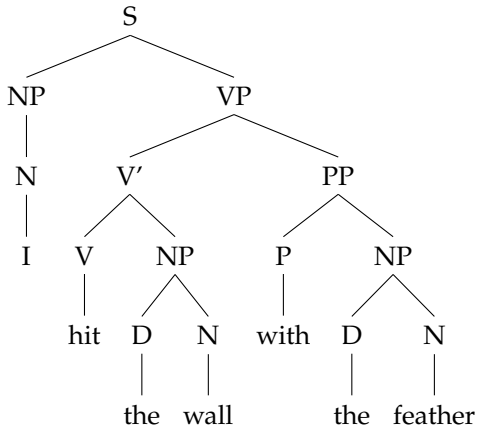
The ants thrived	The anteater arrived
The anteater devoured the ants	Mary slapped the anteater
*The ants thrived the ant-farm	*The anteater arrived the anthill
*The anteater devoured	*Mary slapped

Some verbs are transitive (requiring objects; e.g., devoured) others are intransitive (not requiring objects; e.g., arrived). These facts are particular to verbs and therefore have to be memorized. Much like we have to learn that -able in English requires a verb.

I hit the wall with a feather

Notice that the constituent *the wall* and the constituent *with a feather* have a different status. We must have the object but the prepositional phrase is optional (grammatically). This is the core distinction between **arguments** and **adjuncts**.[2]

In trees, we record the difference between an argument an adjunct with the label we give to their combination:



That is, we use the ' (pronounced bar in this context) notation to denote intermediate combinations of a category like V with its arguments like NP. When we add an adjunct we get out a phrase.

[1] Accounting for the following facts is cumbersome using the type of phrase structure rules we have just learned and are best capture by a formalism developed later in linguistic theory. For the time being we won't expand into that theory fully. For those interested, a dominant approach is called Minimalism and was articulated in Chomsky (1995).

[2] Note that there are optional arguments, like 'a novel' in 'I wrote a novel'. We set this aside for now.

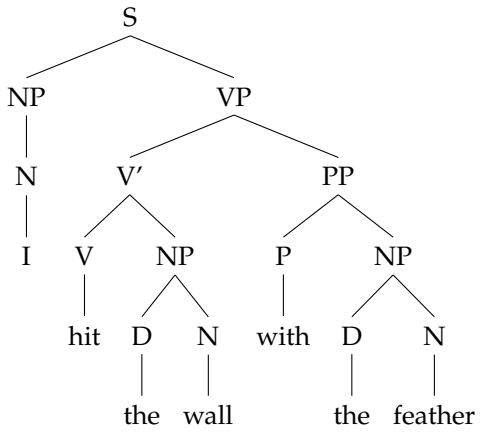
Practice Problems

Draw the syntax trees for the following sentences.
If more than one is possible, give both.

1. Dave likes Tom.
2. Cool kids adore weird nachos on Wednesday.
3. A nice old man with a limp sold candy to many deranged clowns.
4. Dave drove a car from a city near a lake. (which can mean multiply things, give trees for alternative meanings)

Some Terminology

WE HAVE TERMINOLOGY TO DENOTE THE RELATIONS encoded in a tree structure. Consider a tree from before:



We say that D and N are **sisters**. PP is the **parent** of P and NP. We say that PP **immediately dominates** P and NP and it **dominates** P, NP, D, N. A sequence of words is a **constituent** if all and only the words in that sequence are dominated by a single node.

Question

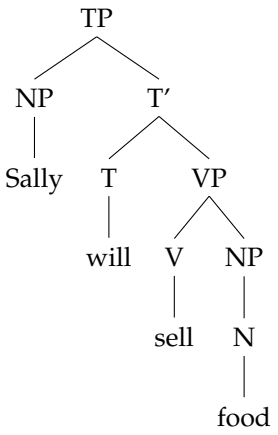
How would you describe the relationship between S and VP and S an N?

Adding Some Structure: TPs

WE HAVE BEEN USING S AS A PLACEHOLDER for the label of a sentence. Let's add a bit more structure that will get us closer to fully representing sentences in English (and the world's languages). Namely, how should we build a tree for:

Sally will sell food

That is, we have no slot for will so far. We will add a structure, called T (for tense) and TP (for tense phrase) which replaces S and holds the tense component:



Other things that are Ts are things like would, can, should, was. We will add one more layer of structure to complete the structure of a sentence next week.

Pronoun Interpretation and Syntax

PRONOUNS INTERACT WITH SYNTAX in interesting ways. Consider the following data:

Mary's mother admires her

Practice Problems

1. Propose a tree for the above sentence

2. Using the terminology introduced above, give a hypothesis about why Mary and her can refer to the same thing but not mother and her.

Before Next Class

- Reading and pre-class quiz for Tuesday Oct 7 (will post by sometime tomorrow)
- Make progress on Report II !

References

Chomsky, N. (1995). *The Minimalist Program*. MIT Press, Cambridge, MA, USA.